National Fire Weather Report

2010

By

Larry Van Bussum

Operations Section Chief – NWS Fire Weather

National Weather Service Boise, ID

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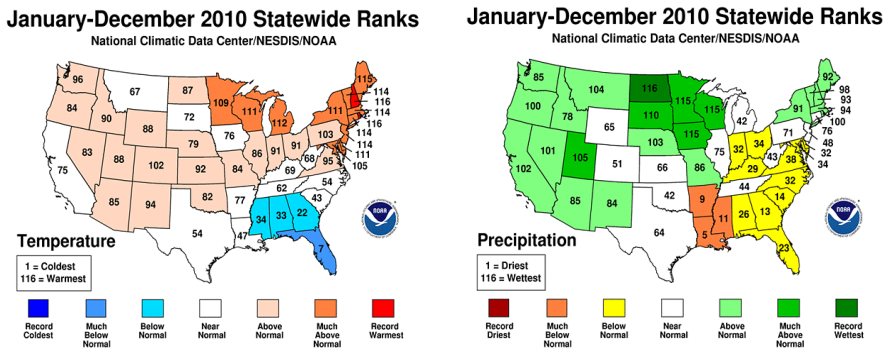
IMET Summary 2010

Fire season 2010 was similar to fire season 2009 with below normal fire activity. Both 2009 and 2010 saw activity similar to the 1990s both in terms of acres burned and National Weather Service (NWS) Incident Meteorologists (IMET) activity. Of interest for 2010 was the increased activity in IMET support for non-wildfire incidents, including two major oil spills in Louisiana and Michigan. Twenty-five of the IMET dispatches for 2010 were for these two incidents, accounting for over 30% of the activity for this year.

Although temperatures across much of the west were above normal, there was also above normal precipitation across much of the west, especially in the late spring and early summer, which delayed fire season across much of the Great Basin, Rocky Mountain, Northern Rockies and Pacific Northwest.



Figures 1 & 2: Annual statewide ranks of temperature and precipitation

Monthly IMET Activity:

January – March: Little Activity.

April: One IMET was dispatched to the Bowling Green Fire near Erwin, TN. Otherwise, little activity.

May: IMETs were asked to support the Deepwater Horizon oil spill response effort. The first IMET was sent to Houma, LA, on 5/22/10 and IMETs were also sent to the US Coast Guard staging area in Venice, LA. In total, there were 18 IMET missions to this incident, running through November 24th. Elsewhere, IMETs responded to fires in Arizona, Colorado, New Mexico and Alaska.

June: IMETs supported incidents in Alaska, Arizona, New Mexico and Colorado.

July: IMETs supported incidents in Washington and California. The Bull Fire and the West Fire in Hanford's area burned 33 residences.

August: IMETs supported wildland fires in Oregon, Oklahoma, California, Idaho, Montana, Washington and Hawaii. IMETs also supported an major oil spill response near Kalamazoo, MI, where around 800,000 gallons of oil spilled from the Enbridge pipeline into the Kalamazoo River. Hawaii had it first ever IMET dispatch in August on the Mauna Kea 33 Fire near Waikoloa. IMET Chris Brenchley from the Weather Forecast Office (WFO) in Honolulu responded to this incident.

September: IMETs supported wildland fires in Utah, California, Colorado and Idaho in September. The Four Mile Canyon Fire near Boulder, CO, burned over 6,000 acres and 172 structures. At one

time, more than 70 subdivisions in and around Boulder were evacuated. IMET Lisa Kriederman from WFO Boulder responded to this incident.

October - December: IMETs supported wildfires in Louisiana and Wyoming in mid-October. November was quiet with no IMET dispatches. The last dispatch of the year was IMET Rob Balfour from WFO San Diego, who worked with local law enforcement and fire departments in support of a prescribed burn of a home that had been condemned due to dangerous explosives.

IMET
Dispatches
2010

IMET Home Office	*County Warning Area*	*Incident Location, State*	*Dispatch*	*Return*	*Days*
Edwards Jackson, KY	GSP	Bowling Green Fire near Erwin, TN	4/20/10	4/22/10	3
Bird El Paso, TX	EPZ	Area 74 Rx Burn near Winston, NM	5/18/10	5/22/10	5
Ruthford Portland, OR	LIX	Deepwater Oil Spill near Houma, LA	5/22/10	6/6/10	16
Murdoch Midland, TX	MAF	New Fire near Carlsbad, NM	5/23/10	5/28/10	6
Moore Pueblo, CO	GJT	Beaver Fire near Montrose, CO	5/23/10	5/29/10	7
Wachter Albuquerque, NM	ABQ	H12 Fire near Raton, NM	5/27/10	6/1/10	6
Tonkin Eureka, CA	AFG	Eagle Trail Fire near Tanacross, AK	5/31/10	6/15/10	16
Kriederman (T) Boulder, CO			5/31/10	6/14/10	15
Kriederman Boulder, CO			6/16/10	6/19/10	4
Meyers Phoenix, AZ	TWC	Horseshoe Fire near Portal, AZ	5/29/10	6/2/10	5
Harrison Las Vegas, NV			6/1/10	6/16/10	16
Harris Fort Worth, TX			6/14/10	6/28/10	15
Paulson Minneapolis, MN	AFG	Delta Complex Delta Junction, AK	6/1/10	6/14/10	14
Wachter Albuquerque, NM	ABQ	Rio Fire near Jemez Springs, NM	6/2/10	6/7/10	6

IMET Home Office	*County Warning Area*	*Incident Location, State*	*Dispatch*	*Return*	*Days*
Byrd Jackson, MS	LIX	USCG Venice Staging near Venice, LA	6/11/10	6/28/10	18
Weishaar Portland, OR			6/26/10	7/11/10	16
Mehle Monterey, CA			7/9/10	7/26/10	18
Pendergrast Melbourne, FL			7/23/10	8/8/10	17
Hockenberry NIFC – Boise			8/6/10	8/22/10	17
Lynn Peachtree City, GA			8/19/10	9/5/10	18
Davis Tampa, FL			9/3/10	9/19/10	17
Byrd Jackson, MS			9/17/10	10/4/10	18
Curtis Juneau, AK			10/2/10	10/17/10	16
Byrd Jackson, MS			10/15/10	10/30/10	16
Goudsward Little Rock, AR			10/29/10	11/15/10	17
Balfour San Diego, CA			11/13/10	11/24/10	12
Wachter Albuquerque, NM	ABQ	South Fork Fire near Los Alamos, NM	6/11/10	7/1/10	21
Carpenter (T) Cheyenne, WY			6/16/10	6/28/10	13
Stubblefield Flagstaff, AZ	FGZ	Boggy Fire near Alpine, AZ	6/12/10	6/15/10	4
Ramey Grand Junction, CO	MAF	Cutoff Fire near Whites City, NM	6/12/10	6/16/10	5

IMET Home Office	*County Warning Area*	*Incident Location, State*	*Dispatch*	*Return*	*Days*
Bird El Paso, TX	ABQ	Tecolote Fire near Montezuma, NM	6/13/10	6/22/10	10
Goldstein (T) Sacramento, CA			6/18/10	6/22/10	5
Kennedy (T) Morehead City, NC	MOB	Deepwater Support WFO MOB near Mobile, AL	6/20/10	7/4/10	15
Smith, B. (T) New York City, NY			6/21/10	7/5/10	15
Cerniglia Seattle, WA			7/3/10	7/19/10	17
Jelsema (T) Charleston, SC			7/3/10	7/19/10	17
Thompson Oxnard, CA			7/10/10	7/25/10	16
Decker Boise, ID	PUB	Medano Fire near Crestone, CO	6/20/10	7/5/10	16
Struthwolf Salt Lake City, UT			7/3/10	7/9/10	7
Stubblefield Flagstaff, AZ	FGZ	Schultz Fire near Flagstaff, AZ	6/21/10	7/1/10	11
Goldstein (T) Sacramento, CA			6/22/10	6/30/10	9
Reedy Tucson, AZ	EPZ	Paradise Fire near Alpine, AZ	6/23/10	6/29/10	7
Moore Pueblo, CO	BOU	Cow Creek Fire near Glen Haven, CO	6/28/10	7/3/10	6
Carter Spokane, WA	OTX	Swakane Fire near Wenatchee, WA	7/11/10	7/18/10	8

IMET Home Office	*County Warning Area*	*Incident Location, State*	*Dispatch*	*Return*	*Days*
Kubina Cleveland, OH	LIX	Deepwater Horizon Support WFO LIX near Slidell, LA	7/17/10	8/1/10	16
Goudsward Little Rock, AR			7/17/10	8/1/10	16
Fleegel Marquette, MI			7/25/10	8/1/10	8
Okulski Memphis, TN			7/31/10	8/9/10	10
Wallmann Reno, NV	REV	Russel Fire near Little Valley, CA	7/26/10	7/28/10	3
Burger Eureka, CA	MFR	Modoc Lightning Complex near Alturas, CA	7/27/10	7/29/10	3
Gettman Medford, OR	REV	Constatia Fire near Doyle, CA	7/27/10	7/30/10	4
Bean Hanford, CA	HNX	Bull Fire near Kernville, CA	7/28/10	8/2/10	6
Bonk Pendleton, OR	REV	Mcdonald Fire near Termo, CA	7/29/10	8/2/10	5
Thompson Oxnard, CA	HNX	West Fire near Tehachapi, CA	7/29/10	8/1/10	4
Wolf Spokane, WA	OTX	Wenatchee River Complex near Cashmere, WA	7/31/10	8/4/10	5
Bonk Pendleton, OR	PDT	Rooster Rock Fire near Sisters, OR	8/3/10	8/10/10	8
Carpenter Cheyenne, WY	GRR	Kalamazoo River Oil Spill near Marshall, MI	8/11/10	8/19/10	9
Ramey Grand Junction, CO			8/18/10	8/25/10	8
Borsum Billings, MT	OUN	North Mountain Fire near Cooperton, OK	8/14/10	8/18/10	5

IMET Home Office	*County Warning Area*	*Incident Location, State*	*Dispatch*	*Return*	*Days*
Bunnag Medford, OR	MFR	Oak Flat Fire near Grants Pass, OR	8/16/10	8/30/10	15
Lutz Medford, OR			8/30/10	9/7/10	9
Messick Pocatello, ID	PDT	White Lightning Complex near Warm Springs, OR	8/21/10	8/28/10	8
Thompson Oxnard, CA	LOX	Pozo Fire near Atascadero, CA	8/22/10	8/26/10	5
Nester Missoula, MT	PIH	Banner Fire near Stanley, ID	8/23/10	8/29/10	7
Loeffelbien (T) Missoula, MT			8/24/10	8/29/10	6
Szatanek Elko, NV	BOI	Long Butte Fire near Hagerman, ID	8/23/10	8/30/10	8
Decker Boise, ID	BOI	Hurd Fire near Cascade, ID	8/24/10	9/3/10	11
Ruthford Portland, OR	PQR	View Lake Complex near Estacada, OR	8/25/10	9/8/10	15
Waranauskas (T) Great Falls, MT			8/29/10	9/5/10	8
Weishaar Portland, OR	PQR	Scott Mountain Fire near McKenzie Bridge, OR	8/26/10	9/1/10	7
Borsum Billings, MT	BYZ	Poker Jim Rx Burn near Ashland, MT	8/26/10	8/29/10	4
Bonk Pendleton, OR	PDT	Hiway 8 Complex near Lyle, WA	8/27/10	9/1/10	6
Brenchley Honolulu, HI	HFO	Mauna Kea 33 Fire near Waikoloa, HI	8/27/10	8/29/10	3
Redman Boise, ID	BOI	Hot Tea Fire near Mountain Home, ID	8/29/10	8/30/10	2
Nester Missoula, MT	BOI	Whitehawk Mountain Fire near Lowman, ID	8/30/10	9/4/10	6

IMET Home Office	*County Warning Area*	*Incident Location, State*	*Dispatch*	*Return*	*Days*
Fleegel Marquette, MI	GRR	Kalamazoo River Oil Spill near Marshall, MI	9/2/10	9/9/10	8
Struthwolf Salt Lake City, UT	SLC	Twitchell Canyon Fire near Manderfield, UT	9/6/10	9/21/10	16
Morrison Honolulu, HI			9/19/10	9/28/10	10
Survick Pocatello, ID			9/27/10	10/6/10	10
Tonkin Eureka, CA	EKA	Buckeye Fire near Petrolia, CA	9/7/10	9/11/10	5
Kriederman Boulder, CO	BOU	Four Mile Canyon Fire near Boulder, CO	9/8/10	9/13/10	6
Kriederman Boulder, CO	BOU	Reservoir Road Fire near Loveland, CO	9/13/10	9/19/10	7
Redman Boise, ID	BOI	Pole Mill Rx Burn near Cambridge, ID	9/15/10	9/17/10	3
Smith, J. (T) Boise, ID			9/15/10	9/17/10	3
Harty Hanford, CA	HNX	Canyon Fire near Lake Isabella, CA	9/15/10	9/20/10	6
Redman Boise, ID	PIH	River Breaks Fire near North Fork, ID	9/30/10	10/5/10	6
Borsum Billings, MT	RIW	Antelope Fire near Yellowstone NP, WY	10/2/10	10/5/10	4
Harris Fort Worth, TX	LCH	Wrangler Fire near Pineville, LA	10/15/10	10/22/10	8
Hooper Paducah, KY	GRR	Kalamazoo River Oil Spill near Marshall, MI	10/17/10	10/24/10	8
Balfour San Diego, CA	SGX	Via Scott Incident near Escondido, CA	12/9/10	12/9/10	1

IMET Incident Response Summary

YEAR	FIRES	ACRES	IMET DISPATCHES	IMET DAYS	IMET HOURS
1987	143,877	4,152,575	87	587	8,218
1988	154,573	7,398,889	123	912	12,768
1989	121,714	3,261,732	58	344	4,816
1990	122,763	5,452,874	42	264	3,696
1991	116,953	2,237,714	29	171	2,394
1992	103,830	2,457,665	42	261	3,654
1993	97,031	2,310,420	15	89	1,246
1994	114,049	4,724,014	117	954	13,356
1995	130,019	2,315,730	27	201	2,814
1996	115,025	6,701,390	106	781	10,934
1997	89,517	3,672,616	15	94	1,316
1998	81,043	2,329,709	94	951	13,314
1999	93,702	5,661,976	81	553	7,742
2000	122,827	8,422,237	204	1,565	21,910
2001	84,079	3,555,138	112	924	12,936
2002	88,458	6,937,584	174	1,490	20,860
2003	85,943	4,918,088	152	1,406	19,684
2004	77,534	6,790,692	91	662	9,268
2005	66,552	8,686,753	103	794	11,116
2006	96,385	9,873,745	207	1,920	26,880
2007	85,822	9,321,326	185	1,947	27,258
2008	80,094	5,254,109	171	1,781	24,934
2009	78,792	5,921,786	71	680	9,520
2010	71,971	3,422,724	80	759	10,626
'87 - '10 Average	**100,940**	**5,240,895**	**99**	**835**	**11,692**
'01 - '10 Average	**81,563**	**6,468,195**	**135**	**1,236**	**17,308**

Table 1. Years highlighted in gold are the top 3 years in terms of acres burned. Years highlighted in gray are the bottom 3 years in terms of acres burned.

2010 Statistics

The trend of acres burned as well as IMET dispatches has been on the rise over the last decade. The chart below shows the upward trend in the last 10 years.

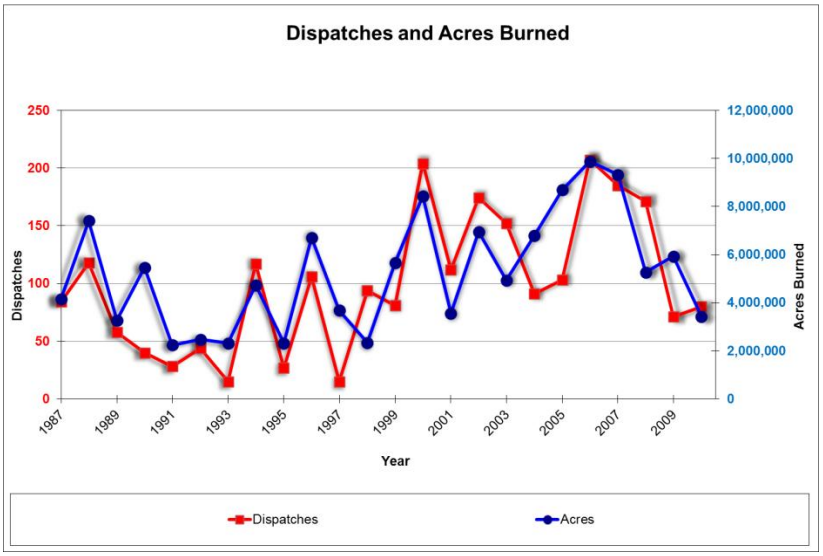


Chart 1. IMET dispatches and acres burned from 1987 through 2010.

The number of IMETs dispatched for 2010 never rose above the average over the last 10 years, matching a similar trend in 2009.

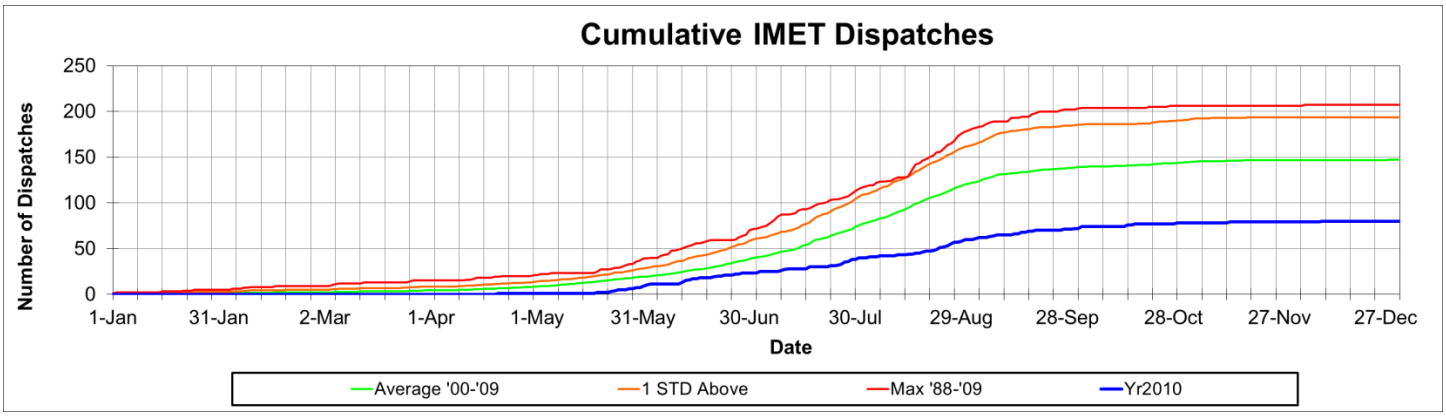


Chart 2. Cumulative IMET Dispatches for 2010.

There were several days in 2010 that the number of IMETs on assignment that day matched the all time record (notably in early June as well as late in the season in October and November), there were no new records of number of IMETs on assignment at any one time for any day in 2010. This marks the first year in a over a decade that no new records were set.

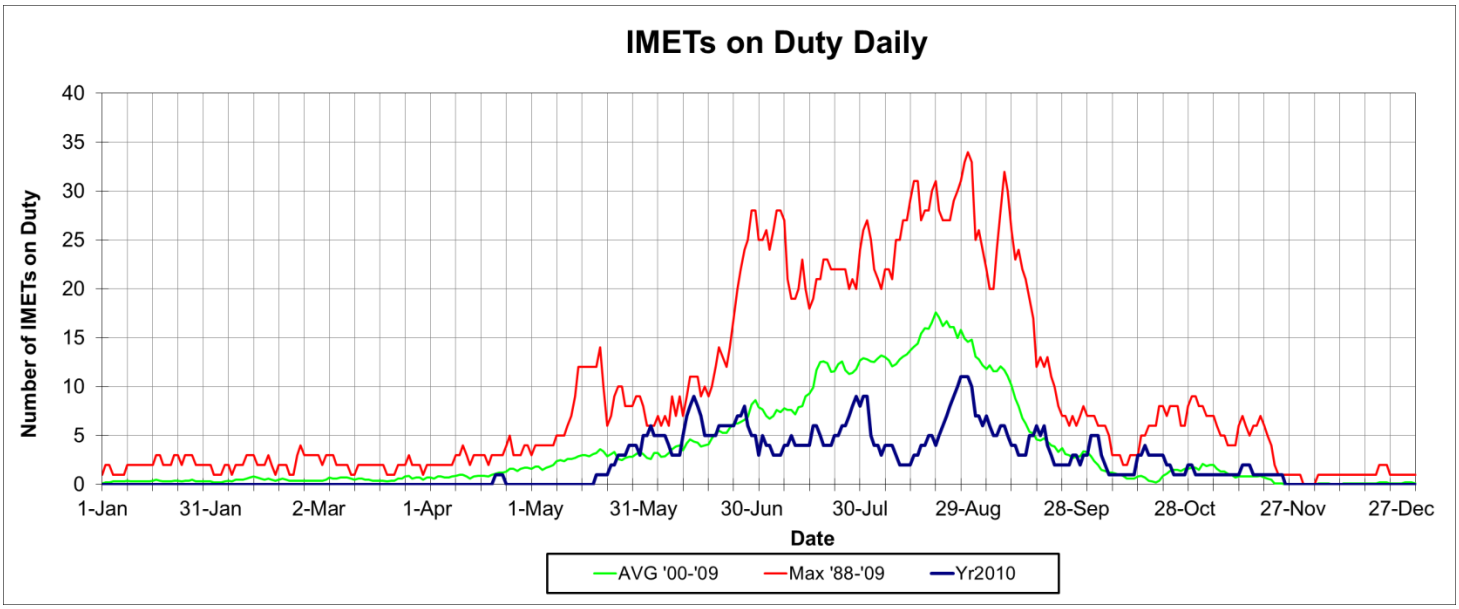


Chart 3. Number of IMETs on assignment each day of 2010.

IMET response is very important to NWS IMET program users. They prefer that the NWS provide IMETs from close-by and within 24 hours of the request for services. This matches expectations of their own incident overhead personnel. The NWS is meeting or exceeding wildland fire agencies' requirement in both distance and time.

Average Distance From IMET Office to Fire	*549 miles*
Median Distance From IMET Office to Fire	*206 miles*

Table 2. Average and median distance from an IMETs office to an incident in 2010. The difference is mainly due to the number of IMETs dispatched to Louisiana to support Deepwater Horizon.

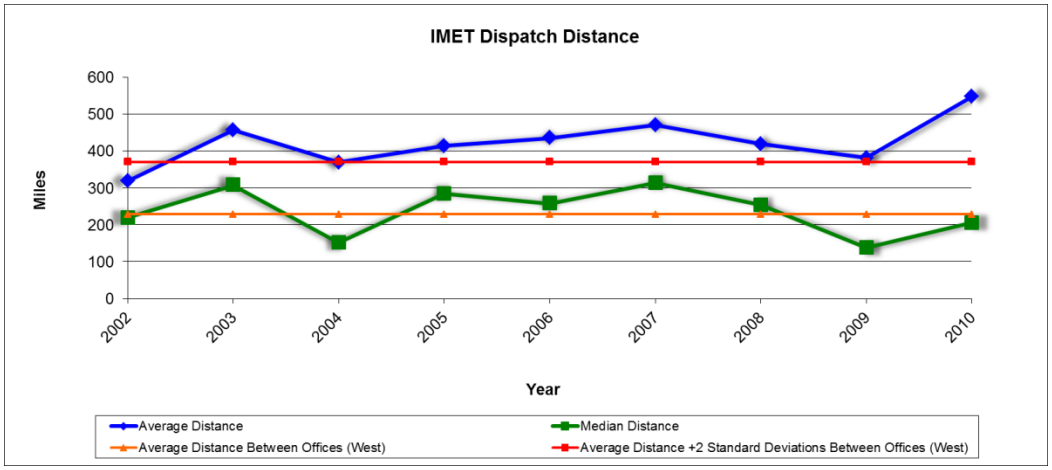


Chart 3. Average and Median Distance from IMET's office to incident since 2002.

Average Time For IMET Dispatch	*10.4 hours*
Median Time for IMET Dispatch	*3.3 hours*
Note: The dispatch times for swap outs are defaulted to "0" hours because there is no wait time on the part of the incident team since there is already an IMET on site.	

Table 3. 2010 Average and Median time from the time an IMET is requested until they arrive on site.

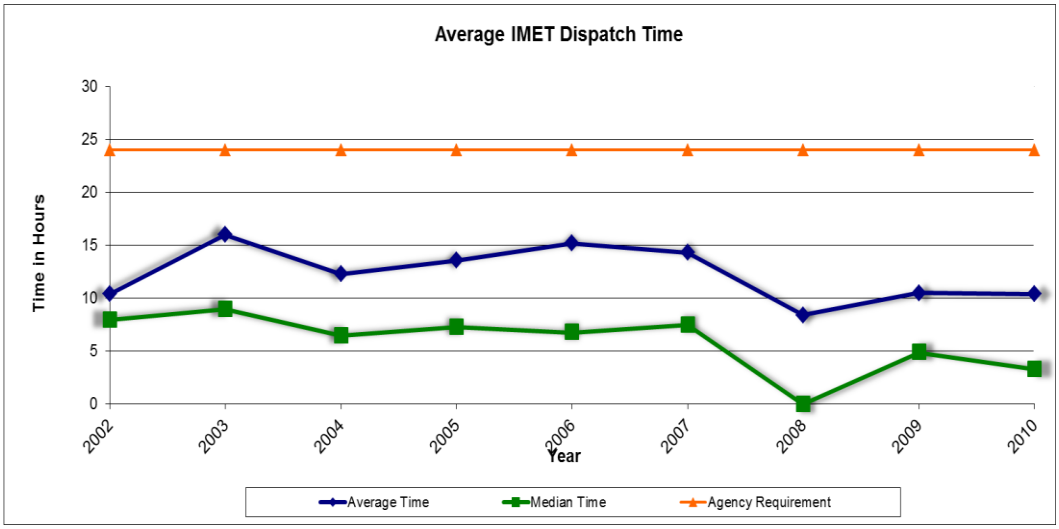


Chart 4. Average and median IMET dispatch times since 2002.

While some IMETs did not get deployed in 2010 due to availability issues, of those that did deploy, on average they had 2 missions in 2010. The average number of days per mission was 9. The NWS was able to certify 3 new IMETs in 2010 and filled 100% of the dispatch requests from our users.

2010 Statistics		Notes
Average Number of Dispatches per IMET	*2*	
Average Number of Days per Dispatch	*9*	
Percentage of Dispatch Requests Filled	*100%*	*Every request that was received by the National Fire Weather Operations Coordinator (NFWOC) in Boise was filled.*
Number of Trainees Completing Training	*3*	*Central Region: 2* *Western Region: 1*

Table 4. Dispatch numbers and days per IMET. Also percentage of requests filled and number of trainees certified in 2010.

The majority of IMETs dispatched in 2010 were from the Western Region.

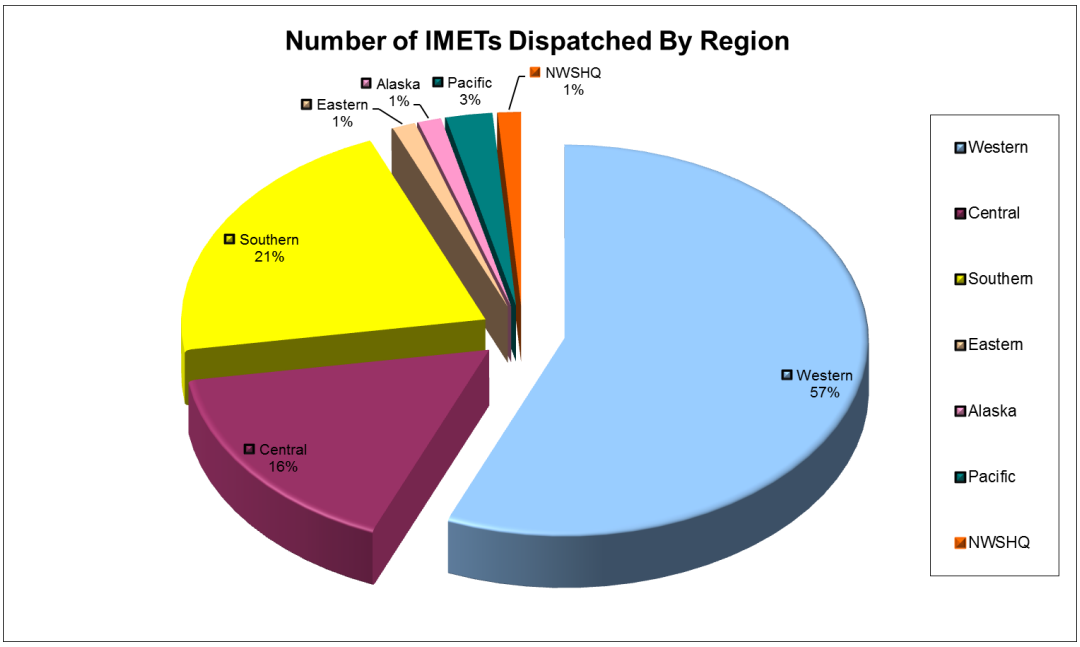


Chart 5. Percentage of IMETs dispatched per NWS Region for 2010.

The majority of incidents over the previous 10 years have been in Western Region.

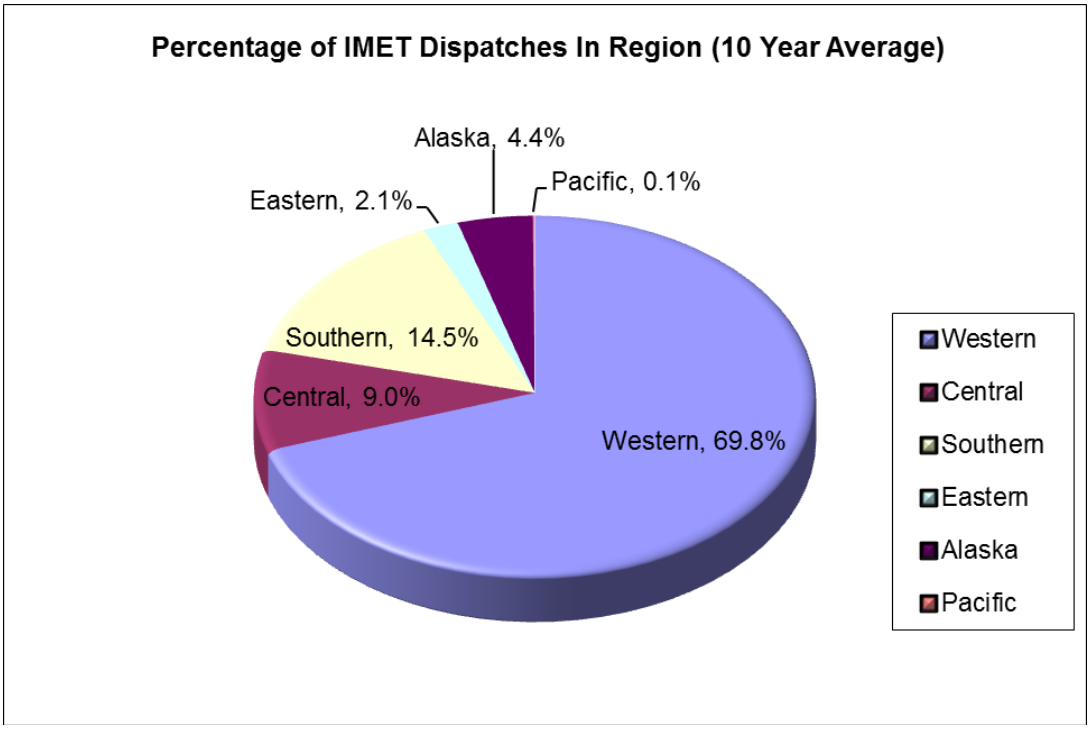


Chart 6. Ten year average percentage of IMET dispatches per NWS Region.

The bulk of IMET dispatch requests come from the wildland fire agencies. These agencies consist of the Department of Agriculture's US Forest Service; The Department of Interior's Bureau of Land Management, Bureau of Indian Affairs, US Fish and Wildlife Service, and the US Park Service; and state fire agencies. A significant number of IMET requests were for non-wildfire related incidents in 2010, with requests from the US Coast Guard, FEMA and state support.

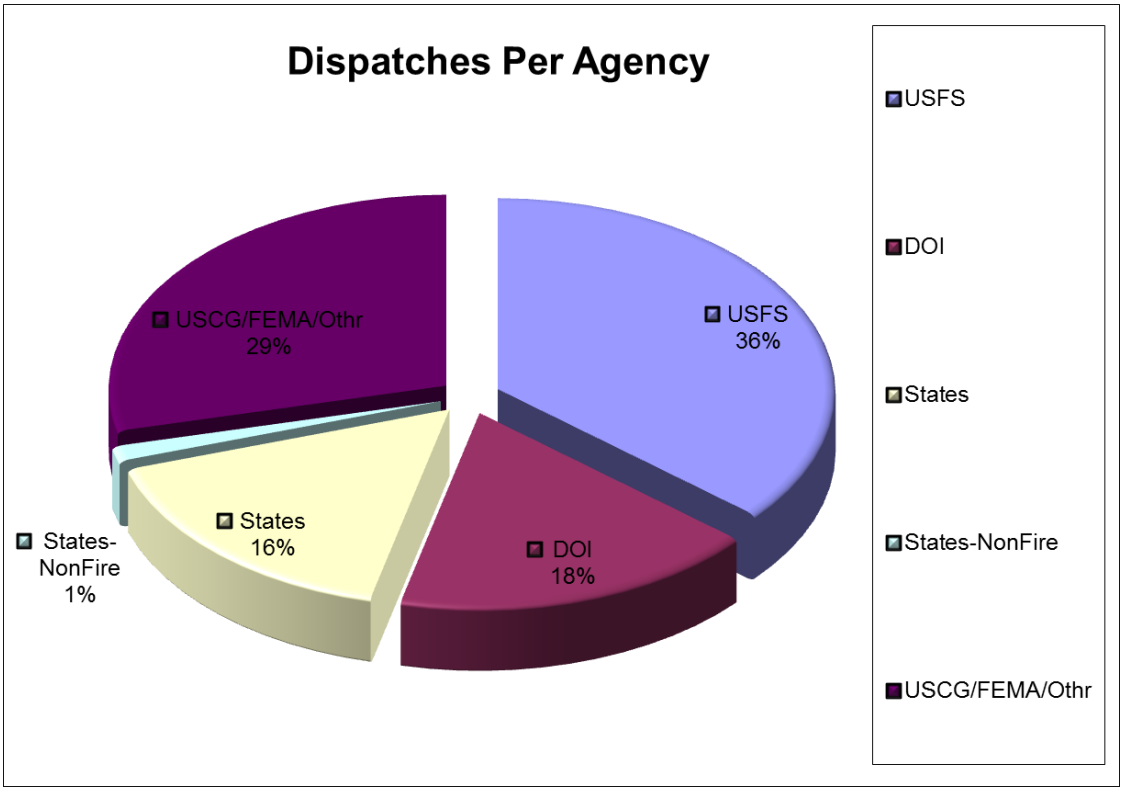


Chart 7. Percentage of total 2010 dispatch requests per agency.

While support for incidents mainly comes from within the same NWS region, there is cooperation between the regions with mutual support. Table 5 shows the within region support and the support external to each region for 2010.

Region	Percentage of Incidents Within Region Covered By Own IMETs	Actual Number	Percentage of Incidents Where IMETs Sent To Another Region to Cover	Actual Number
Western	*94%*	*33 of 35*	*50%*	*11*
Central	*73%*	*8 of 11*	*23%*	*5*
Southern	*55%*	*16 of 29*	*5%*	*1*
Eastern	*0%*	*0 of 1*	*5%*	*1*
Alaska	*0%*	*0 of 3*	*9%*	*2*
Pacific	*100%*	*1 of 1*	*5%*	*1*
NWS HQ	--	--	*5%*	*1*

Table 5. IMET support within regions and external to regions for 2010.

Each region of the United States in unique in its fire seasons. These differences are dependent on the fuels available and the climate. The peak fire season times are listed in Table 6 for each NWS region.

Western Region	*15 Jun – 15 Sep*
Central Region	*1 Jun – 15 Sep*
Southern Region	*1 May – 15 Jul*
Eastern Region	*1 Jun – 31 Jul, 15 Oct – 15 Nov*
Alaska Region	*25 May – 15 Aug*
Pacific Region	*None*
Nationally	*1 May – 30 Sep*

Table 6. Peak fire seasons for each NWS Region.

2010 National Red Flag Warning Verification

NWS offices nationwide issue red flag warnings for expected severe fire weather conditions. Table 7 summarizes the verification statistics for 2010 for red flag warnings.

Region	POD	FAR	CSI	Lead Time (hrs)	Number RFWs Issued	Spot Forecasts
Western Region	*0.90*	*0.23*	*0.71*	*19.18*	*1,007*	*7,843*
Central Region	*0.92*	*0.28*	*0.68*	*10.02*	*3,397*	*5,291*
Eastern Region	*0.92*	*0.26*	*0.70*	*6.55*	*1,659*	*1,496*
Southern Region	*0.91*	*0.24*	*0.71*	*15.64*	*14,613*	*8,503*
Alaska Region	*1.00*	*0.12*	*0.88*	*22.04*	*82*	*661*
Pacific Region	*0.30*	*0.53*	*0.23*	*0.02*	*195*	*107*
National	*0.90*	*0.25*	*0.69*	*14.01*	*20,953*	*23,901*

Table 7. POD = Probability of Detection; FAR = False Alarm Rate; CSI = Critical Success Index.

The national performance standard for 2010 was:

POD	*0.86*
Lead Time	*10.40 hours*

Table 8. 2010 national performance standards.

Table 9 summarizes the national POD, FAR, CSI, Lead Time (in hours), average annual RFWs issued and average annual Spot Forecasts issued since national statistics have been tracked starting in 2003. Chart 8 below indicates a growing trend in the number of red flag warnings issued as well as the number of sport forecasts issued.

POD	FAR	CSI	Lead Time	RFWs Issued	Spot Forecasts
0.91	*0.22*	*0.72*	*12.80*	*15,514*	*18,337*

Table 9. Eight year average POD, FAR, CSI, lead time (in hours), number of red flag warnings issued annually and number of spot forecasts issued annually.

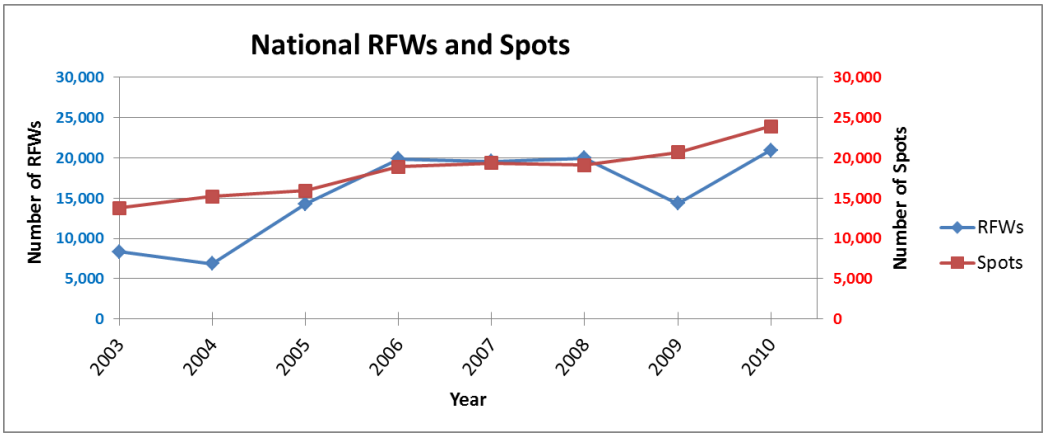


Chart 8. Number of Red Flag Warnings and Spot forecasts issued annually by the NWS since 2003.

The following are the red flag warning national performance standards for the next 5 years:

Year	POD	Lead Time (hours)
2011	*0.87*	*10.45*
2012	*0.87*	*10.45*
2013	*0.88*	*10.50*
2014	*0.88*	*10.50*
2015	*0.89*	*10.55*

Table 10. NWS fire weather program national performance standards for the next 5 years for red flag warnings.

The NWS IMET utilizes special equipment to work in the field at incidents called the All Hazard Meteorological Response System (AMRS). This equipment allows the IMET to set up a "mini weather forecast office" in the field. This allows the IMET to gather and interpret model data, satellite and radar data and observations, do in depth analysis of this data and issue forecasts, watches and warnings on site at an incident. The NWS has 70 AMRS located at Weather Forecast Offices (WFOs) across the nation, mainly in areas where wildland fire is a threat. Some stations have more than one unit reflecting those areas that are most prone to a wildfire threat and have multiple IMETs on site to deploy to these incidents. The AMRS locations (and the IMETs that use them) are show below in figure 3.

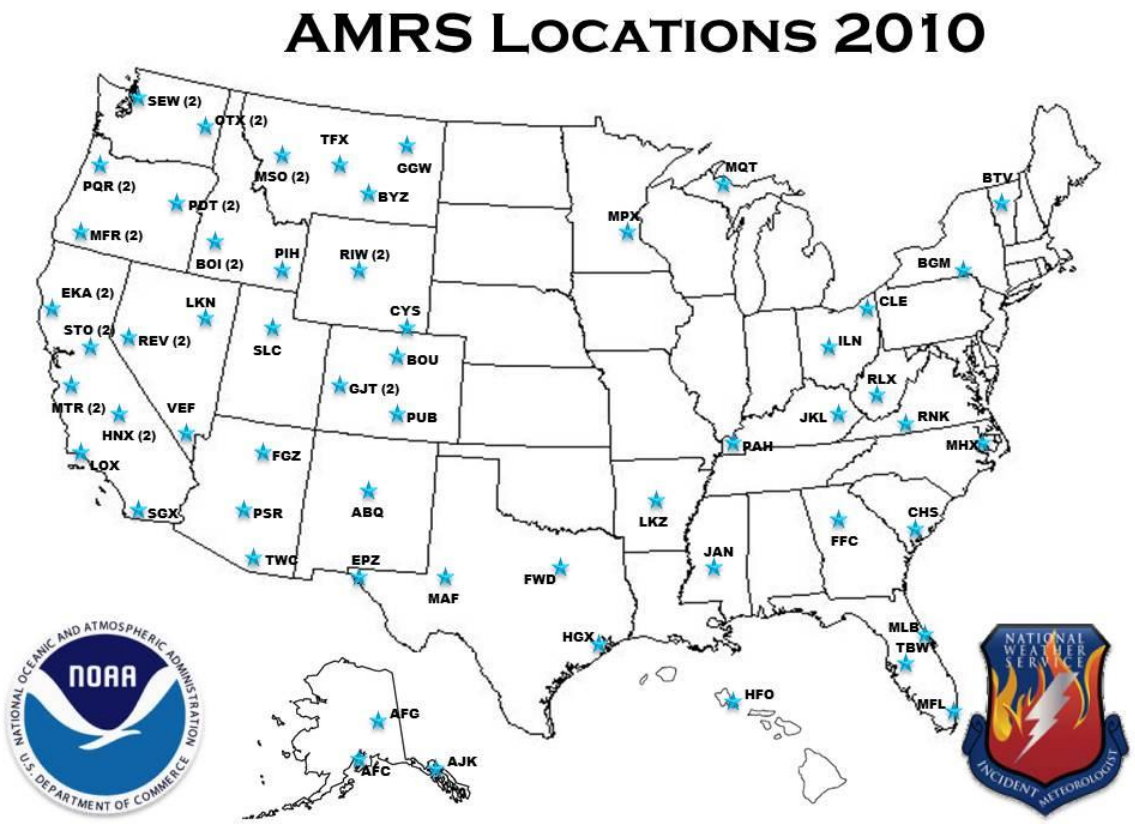


Figure 3. Home location of NWS All Hazard Meteorological Response Systems (AMRS) and their associated IMETs. Number in parenthesis indicates multiple AMRS at location.